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THE VALIDITY OF ITEMS IN A STUDY HABITS INVENTORY

FOWLER D. BROOKS AND JOSEPH C. HESTON

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INTRODUCTION

Purpose.—The literature on educational psychology is replete with investigations pertaining to study habits. Cuff[5] recently summarized the findings from five hundred such studies and facetiously implies there are that many additional ones. The only excuse, therefore, for a new venture in this area is to perform a check experiment—i.e., to test statistically the significance of items claimed to have validity in differentiating between good and poor students. For such generally used instruments, claimed validity is not particularly valuable if it holds only for the original population sampled. We propose here to check, against a new student population, the validity of items widely accepted as characteristic of good students as contrasted with poor students. Additional supplementary approaches to validity determination will also be attempted.

Source of Items.—With the exception of one reference,[7] all the studies listed in our bibliography present 'tested and tried' rules and suggestions for study-methods. There is considerable communality in the lists proffered, partially due at least to the practice of more recent writers drawing their rules from the earlier ones. The most recent and inclusive listing of such habits is suggested (in several separate questionnaires) by Robinson.[11*] His list is modified slightly from the study questionnaire

* It is proper here to point out that Robinson views the study questionnaire as most useful in the counseling situation. The authors of this article share the viewpoint expressed in the following personal communication from Dr. Robinson: "It seems to me the main value of a study questionnaire is to provide a quick means for the student to describe his complaints

in Pressey and Troyer.[10] Their statements were, in turn, modifications of ones used in the investigation reported by L. C. Pressey.[9] This last study presents thirty questionnaire items, each of which showed a difference of twenty per cent or more between the fifty best and fifty poorest out of a group of two hundred students at Ohio State University. These valid items were the useful items from an original list of one hundred twenty-five statements.

The items now presented by Robinson and drawn from the sources indicated cover much the same study-methods emphasized in the remaining titles in our bibliography. The twenty-eight items in Wrenn's revised inventory[12] deserve special comment. They have been successfully validated by showing a critical ratio of 2.00 or more in differentiating good students from poor. Twenty-two of these items have demonstrated this in the original study made with one hundred eighty Stanford University men and again in a second study made of students at the University of Minnesota. The other six items were added from the second study on a similar basis. Eight of Wrenn's earlier items (1933 form) were dropped as a result of the second experiment.

PROCEDURE

The Present Inventory.—With Dr. Robinson's permission, we collected seventy-five items from the several questionnaires in his manual.[11] With minor re-wording and grouping they form the 'Study Habits Inventory.' It is reproduced on page 267 so that each item can be identified by number in the validation analyses which are presented. The accepted 'good-habit' answer for each item is indicated.

The Sample.—The inventory was administered in October, 1942, to classes above freshman level in the departments of economics, English, psychology, and zoology at DePauw University. This departmental distribution provides a fair cross-section of DePauw students. The data were collected before the war situation caused much decrease in the male enrollment or high-pressure acceleration. By limiting the survey to students

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so that the counselor may more quickly get under way. That is, taking the student's complaints increases rapport and adds to the motivation. Your results indicate that it would be inefficient to have students take a study questionnaire and then merely read for self-treatment. There is definite need for a counselor to make diagnoses and suggestions."

of sophomore standing, or higher, we secured cases whose scholastic grade average was based on at least one full year's work at DePauw. Too frequently studies in this area use one or two course-grades as their criterion.

In addition to a completed questionnaire, we secured for each student his DePauw decile rating (10th being high) on the American Council on Education Psychological Examination (ACE) and data to compute his cumulated grade average. This latter, the Point-Hour-Ratio (PHR) is based on a grading system where A = 3 points, B = 2, C = 1, D = 0, and F = −1, Altogether two hundred seventy-six usable cases were secured with complete data on all these factors.

Methods of Analysis.—Each inventory was scored and the 'errors' indicated, an error being an answer opposite to the supposedly good habit. Seven different types of item analysis were carried out, each based upon the critical ratio technique.* In each of the seven analyses, two groups were contrasted, using the critical ratio of the difference in percentage of each group 'passing' each inventory item. A critical ratio of 3.00 is interpreted as 'absolute certainty' that the observed difference is significant and not a matter of chance, while a ratio of 2.00 has ninety-eight chances in one hundred of true significance. To check validity under varying conditions of the three main variables, the following analyses were made by the technique indicated above:

(1) Using PHR as the criterion, the fifty best student answers to each item were compared with the answers of the fifty poorest students. No attempt was made here to control intelligence (ACE).

(2) High intelligence was held constant by matching, twenty-five pairs for high ACE rank, and then comparing the twenty-five with highest PHR with the poorest twenty-five.

(3) Low intelligence was held constant for twenty-five matched pairs and the best students compared with the poorest.

(4) Disregarding grades or intelligence, the fifty best inventory papers (i.e. low 'error' scores) were compared with the fifty poorest papers.

(5) Using ACE as the experimental factor, the fifty highest ACE students were compared with the fifty lowest. PHR was disregarded here.

* See Garrett[7] (p. 288) for the formula for the standard error of the difference between two percentages.

(6) Holding high PHR constant by matched pairs, the twenty-five highest on ACE were compared with the twenty-five lowest.

(7) Holding low PHR constant by matched pairs, the twenty-five highest ACE were compared with the twenty-five lowest.

As a more usual and supplementary method of determining relationships, intercorrelations between the three variables were determined.

THE DATA OBTAINED

The Characteristics of the Sample.—The mean number of study-habit 'errors' for the two hundred seventy-six students is 23.57 (SD 6.27); the mean PHR is 1.57 (SD .523); the mean decile on ACE of 6.03 (SD 2.67) is approximately equivalent to a DePauw percentile of 55. On all three variables the sample is fairly typical of DePauw upperclassmen.

Characteristics of the Subgroups.—The paired subgroups compared with each other in the seven different critical ratio item analyses are described by the data given in Table I.

The Critical Ratio Analyses.—The critical ratios of the percentage difference for each inventory item on each of the seven analyses are presented in Table II. Positive CR's in each instance are to be interpreted as meaning Group A practiced the desirable alternative for that given habit more often than did Group B. That is, a positive CR means Group A 'passed' that item a higher percentage of the time than did Group B.

Following Wrenn's practice, we may be reasonably sure that a critical ratio of 2.00 or more indicates a real difference. Whether the sign is negative or positive is perhaps immaterial, for a negative CR simply means Group A practiced the 'desirable' habit less often than Group B. In Table III we find summarized the number of CR's of 2.00 or more, the last entry showing the total expressed as per cent of the seventy-five items.

The Intercorrelations.—The Pearson r's for two hundred seventy-six cases were as follows:

PHR and Errors, −.175; ACE and Errors, −.067;

PHR and ACE, .359.

The negative signs of the first two r's would change to positive if one used 'good' study habits as the variable in place of 'errors.'

DISCUSSION

In Analysis 1 we have the same type of groups compared as were used in Pressey's study.[9] She reports thirty items in a list

TABLE I.—CHARACTERISTICS OF THE SUBGROUPS USED IN THE SEVEN TYPES OF ITEM ANALYSES

Analysis	Group	N	Description	Matched for:	Mean Decile ACE	Mean PHR	Mean 'Errors'
1	A	50	Highest PHR	.....	7.52	2.37	20.28
	B	50	Lowest PHR		4.18	0.84	23.62
2	A	25	High PHR High ACE	High ACE	8.04	2.39	19.48
	B	25	Low PHR High ACE		8.04	1.07	24.92
3	A	25	High PHR Low ACE	Low ACE	3.16	1.89	22.20
	B	25	Low PHR Low ACE		3.16	0.85	23.00
4	A	50	Low 'Error'	.....	6.28	1.73	14.42
	B	50	High 'Error'		5.98	1.40	32.38
5	A	50	Highest ACE	.....	9.64	1.93	21.46
	B	50	Lowest ACE		2.12	1.31	23.38
6	A	25	High ACE High PHR	High PHR	9.52	1.89	20.20
	B	25	Low ACE High PHR		3.16	1.89	22.20
7	A	25	High ACE Low PHR	Low PHR	8.04	1.07	24.92
	B	25	Low ACE Low PHR		3.12	1.09	22.80

TABLE II.—THE CRITICAL RATIOS OF THE PERCENTAGE DIFFERENCES FAVORING GROUP A OVER GROUP B FOR EACH ANALYSIS OF INVENTORY ITEMS

Inv. Item No.	Analysis No.						
	1	2	3	4	5	6	7
1	1.63	0.61	1.19	3.68	−1.22	−1.49	0.29
2	1.63	1.18	2.12	4.64	−0.60	−1.83	0.57
3	−0.85	0.47	−1.49	1.05	−0.58	1.47	−1.84
4	−3.24	−1.58	−1.90	2.04	−1.05	1.44	−0.60
5	1.37	1.18	0.58	4.38	−0.20	−0.87	−0.28
6	1.42	2.09	1.16	5.81	−2.93	−1.15	−1.14
7	1.02	0.86	1.76	3.64	0.21	−0.85	000
8	000	000	−1.03	000	000	1.02	000
9	1.16	1.92	1.24	2.04	−2.58	−2.86	−0.32
10	0.21	−1.83	0.32	2.50	2.16	1.49	1.82
11	2.26	000	1.76	2.04	−1.01	−1.46	−0.57
12	1.42	000	0.58	3.72	−1.05	−0.93	0.09
13	000	1.05	−1.03	2.26	−0.74	−1.06	−1.85
14	2.02	2.14	−0.29	5.34	2.98	1.96	−1.15
15	1.39	1.44	0.60	1.77	−1.01	000	−1.45
16	0.81	0.86	0.30	3.92	2.27	1.75	0.29
17	0.67	0.88	−1.06	3.01	2.54	1.84	000
18	1.30	0.61	000	3.54	0.41	0.88	0.29
19	0.59	000	−0.60	2.52	2.61	0.60	1.05
20	1.63	1.45	0.88	6.83	0.40	−0.30	−0.57
21	0.21	0.58	1.16	4.15	1.95	0.94	0.57
22	−1.77	−0.87	−1.08	0.62	000	0.60	−0.94
23	0.28	000	−0.34	1.52	0.36	0.68	1.12
24	0.55	000	000	2.04	2.04	1.80	000
25	−1.09	−1.28	−3.54	2.55	−0.21	1.49	000
26	−1.35	1.24	000	3.25	−3.28	−1.89	−2.55
27	0.42	1.28	0.61	4.52	−0.42	0.29	−0.98
28	−0.24	−0.63	000	3.88	−1.13	−0.34	0.94
29	−1.01	1.03	−1.49	2.00	1.39	1.47	0.60
30	−0.42	0.29	000	2.27	−2.80	−1.79	−0.58
31	−0.43	000	−1.59	2.37	1.62	1.58	−0.63
32	3.51	−1.06	000	1.49	2.00	1.05	−1.03
33	1.05	0.88	1.17	2.96	−0.92	0.63	−0.29
34	−0.24	1.97	−1.88	4.41	0.85	0.88	−0.90
35	−0.77	1.12	−1.03	1.74	1.56	1.45	0.63
36	0.21	0.57	0.29	1.83	−2.32	000	−0.57
37	−1.25	0.86	0.61	1.98	−1.29	0.61	−2.19
38	−0.59	−1.03	−1.03	0.59	1.44	1.02	1.03

TABLE II.—(*Continued*)

Inv. Item No.	Analysis No.						
	1	2	3	4	5	6	7
39	1.76	1.49	000	5.07	2.83	1.45	1.58
40	1.01	000	1.03	1.44	1.01	000	000
41	0.30	000	−0.88	1.34	0.85	1.44	−1.45
42	1.97	1.77	2.86	2.92	−0.48	−3.13	000
43	2.36	2.20	1.80	2.35	−0.39	1.02	−0.88
44	2.13	2.20	−0.67	3.69	3.06	1.03	1.03
45	−0.82	1.46	−0.34	2.51	−3.99	−1.54	−3.08
46	2.27	1.58	0.67	4.13	−0.32	0.78	0.32
47	000	0.88	1.03	1.18	−0.85	−1.47	−1.45
48	1.79	000	000	2.08	−1.44	000	000
49	2.92	1.79	1.75	6.10	1.83	0.30	−0.28
50	2.07	0.98	−0.18	4.99	2.42	0.59	0.59
51	0.55	1.24	−0.34	2.37	3.46	2.13	0.34
52	1.20	0.29	2.14	1.95	−0.21	−0.57	1.28
53	000	0.71	−0.34	1.53	−2.07	000	−1.65
54	0.23	0.78	0.94	0.89	000	−0.94	−1.44
55	−0.20	0.86	−0.28	2.26	−1.21	−0.87	−0.28
56	0.66	0.88	−0.90	4.66	1.27	1.23	−0.58
57	0.64	1.89	−1.19	2.50	3.01	1.20	−0.88
58	000	−0.37	−1.34	4.88	0.71	0.30	0.37
59	−0.24	0.67	−0.63	4.42	000	1.01	000
60	1.66	1.44	−1.36	4.83	1.58	1.01	1.03
61	000	1.49	−1.03	1.44	1.01	1.02	−1.48
62	−1.01	1.03	−1.03	1.03	0.59	1.02	−1.03
63	1.64	1.03	0.94	3.81	3.03	1.58	0.31
64	2.36	1.49	0.60	2.27	0.85	1.02	−1.48
65	0.85	000	−0.47	2.00	1.71	1.05	1.05
66	−0.66	1.58	0.61	3.15	−3.68	0.58	−2.86
67	000	0.98	−0.31	3.65	−1.08	000	−0.31
68	1.01	−0.58	−1.16	3.62	4.64	2.74	0.86
69	4.04	3.54	1.20	5.61	1.60	0.66	−1.83
70	0.20	0.57	1.01	3.38	−0.60	−0.86	0.59
71	1.22	1.77	0.87	5.81	000	−0.58	−0.28
72	−1.03	000	−1.03	1.79	000	000	−0.60
73	2.13	000	0.60	5.62	1.77	1.02	−0.60
74	0.41	0.28	000	1.45	0.61	0.35	−1.17
75	−2.56	000	−1.12	2.32	1.75	1.12	000

TABLE III.—NUMBER AND PERCENTAGE OF ITEMS SHOWING CRITICAL RATIOS OF 2.00 OR MORE

Analysis	Number of CR's of 2.00 or More			Percentage of Total Number
	+	−	Total	
1	11	2	13	17
2	5	0	5	6
3	3	1	4	5
4	55	0	55	73
5	14	8	22	29
6	2	2	4	5
7	0	4	4	5

of one hundred twenty-five showed a twenty per cent or larger difference in favor of the good students. From our list of items, tested and refined on several Ohio State groups, we found four such items out of seventy-five. Two additional items (#4 and #75) showed difference of minus twenty-two per cent. In our list there are twenty-two of Pressey's thirty good items stated essentially the same as in her study. Only two of these (#94 and #69) performed as well in our study as in the original Pressey investigation. Eight more showed from ten to twenty per cent differences, while five items actually showed negative differences. Obviously, the original validity of the items is not maintained in our study.

A further check on items maintaining consistant validity is found in the analysis of eleven of our items corresponding to similar statements in Wrenn's 1941 Inventory. Only one item (#14) equals the CR of 2.00 used in his selection of items. Four of the eleven items have negative validity in our study. Again we have evidence that items valid for one group do not show equivalent validity when used with a different student population.

Bearing in mind the limitation just noted, there are several ways in which our item analyses can be used to ascertain the so-called better patterns of study habits. The results from Analyses 1, 2, and 3 may be roughly combined into a criterion for item selection, if one grants the significance of PHR (scholastic achievement) as the ultimate validity criterion. Analysis 1 is based on the achievement of good grades, with aptitude uncon-

trolled, while in Analyses 2 and 3, high PHR is the criterion, but high ACE and low ACE are, respectively, held constant. Disregarding the size of the CR's, one can go through Table II and isolate those items showing consistent positive validity in all three columns. The following twenty-four items meet this requirement: 1, 2, 5, 6, 7, 9, 15, 16, 20, 21, 27, 33, 36, 42, 43, 46, 49, 52, 54, 63, 64, 69, 70, and 71. Four additional items (4, 22, 25, and 38) show consistent negative CR's and could be used in our list of successful items by changing the desired answer for each.

Analysis 4 was undertaken under a different conceptual framework. Here, if one grants the assumption that the keyed answers are a valid indication of proper study habits, then the comparison of low-error papers with high-error papers should show which items most consistently differentiate between the two groups and, therefore, can be considered the basic pattern of students with 'good' study habits. Using a CR of 2.00 or larger as our standard of selection, we find fifty-five of the seventy-five items meet this test. It is noteworthy that none of the items display a negative CR in this analysis. But in all fairness one should also note (in Table I) the PHR difference between Groups A and B is not nearly as marked as the superior study habits might lead one to anticipate. In fact, one observes Group A in Analysis 3 making slightly better grades than Group A in Analysis 4, but with less ability (ACE) and more study errors:

Analysis 5 is a test of one hypothesis used in Cuff's study,[5] that the brighter students have the better study habits. With the PHR factor uncontrolled, we discover the brighter students practice thirty-one of the habits in the negative direction from that suggested by the educational experts. And further, with an ACE superiority of 6.5 deciles over Group A in Analysis 3, they make essentially the same PHR, and have very similar error scores.

Analyses 6 and 7 were conceived as checks of still another theory—if groups of high vs. low ability make similar grades, then the low ability group must have better study methods to compensate for inferior aptitude. Since the B groups in these two analyses are the low ACE students, then those items with negative CR's are the good habits they practice more often than the high ability students making the same grades. Using consistent negative CR (regardless of size) in both analyses, 6 and 7, as our selective factor we find thirteen items indicated as 'valid' habits: 5, 6, 9, 11, 13, 20, 26, 30, 45, 47, 54, 55, and 71. This

appears a promising approach until one counts those consistently positive (favoring the high ACE, but similar PHR students) and discovers nineteen items in this category.

CONCLUSIONS

1) Analysis of seventy-five items commonly used in study habits inventories shows that DePauw University upperclassmen making good grades violate twenty-seven per cent of the rules recommended for effective study, whereas the poorer students violate thirty-one per cent.

2) The number of 'good' study habits apparently is not significantly related to the intelligence of the group ($r = .067$) nor to average grades received ($r = .175$).

3) The validity of study habits inventory items for one college population is different from that found in another school. Either the items of an inventory should be validated on a widely selected sample of colleges or each school should find items which are valid for its own student population.

4) The criterion used in selecting good students (i.e. college marks) lacks reliability and hence adequate validity. Other factors besides knowledge of the subject probably play a part as suggested in many investigations of college marks and marking systems.

5) A weakness of the present investigation (and of others which have been reported) is that present study habits are checked against the criterion of grades cumulated during the one, two, or three preceding years. It overlooks the study habits actually used by these students during the years the grade records were being made. Study habits may change after the freshman year as students become acclimated to college and learn how to get grades.

6) The items in this inventory best differentiating good from poor students at DePauw (Analyses 1, 2, 3) are 1, 2, 5, 6, 7, 9, 15, 16, 20, 21, 27, 33, 36, 42, 43, 46, 49, 52, 54, 63, 64, 69, 70, and 71; —to which 4, 22, 25, and 38 could be added, if the desired answer for each is changed, making an inventory of twenty-eight items.

7) As a final conclusion, one should not infer that because good students violate many accepted rules for effective study that good study habits are unimportant. This situation simply raises the question as to how much better the good students could actually work if they had the better study habits.

TABLE IV.—STUDY HABITS INVENTORY

Answer Preferred	
[Yes]	1) Do you have a plan of work for each day?
[Yes]	2) If so, do you stick to it?
[No]	3) Does your work prevent you from engaging in social activities?
[Yes]	4) Do you allow time for exercise?
[Yes]	5) Do you get enough sleep?
[No]	6) Do you waste much time each week talking, reading, or going to the movies when you should be working?
[Yes]	7) Do you have certain hours that you regularly spend in talking and recreation?
[Yes]	8) Do you eat at the same hours each day?
[Yes]	9) Do you study during the hour between two classes, say between a 9 and an 11 o'clock?
[No]	10) Do you feel that you ought to spend as much of your time as possible studying?
[Yes]	11) Do you tend to do about the same thing at the same hour each day?
[Yes]	12) Do you study each day in the same place and at the same time?
[No]	13) Do you get to class or sit down to study, only to find that you do not have your notebook, pen, textbook, or other material you need?
[No]	14) Do you have trouble 'settling down to work' at the beginning of a study period?
[Yes]	15) Do you get your work in on time?
[No]	16) Do you worry about your work?
[No]	17) Do you get tense and nervous when you study?
[No]	18) When you study, do you frequently get up, walk about, glance at a paper or magazine, or do other things which interrupt your work?
[No]	19) Do you feel incapable of doing your work?
[No]	20) Do you daydream in class or when you should be studying?
[No]	21) Do you read all your assignments straight through, rather than emphasize what is most important?
[No]	22) Do you immediately go on to the next lesson when you have completed the one you are working on?

[Yes] 23) Do you try to complete a lesson before allowing interruptions to take place?

[No] 24) With a four-hour French assignment, would you try to complete it at one sitting rather than at several different times?

[Yes] 25) Is it usually at least a half hour from the time you quit studying at night until you are in bed?

[No] 26) Are your study hours interrupted?

[No] 27) Do you prepare for bed before doing some of your studying?

[No] 28) Do you study some of your lessons while in bed or while stretched out on the davenport?

[No] 29) Do you have trouble obtaining the materials that you need for study?

[No] 30) Is your study-room used for many informal meetings during the evening?

[No] 31) Is your study-room near some disturbing source of noise?

[No] 32) Do you have much glare on your book?

[No] 33) Do you have pictures or things that you like to look at on or near your study table?

[No] 34) Do other people in your study-room distract you?

[No] 35) Does the temperature of your study-room make you feel uncomfortable?

[Yes] 36) On your study desk is there a clear (unlittered) space of about two and one-half by four feet?

[Yes] 37) Do you have a satisfactory indirect-light study lamp?

[No] 38) Do you feel that you have no friends?

[No] 39) Do you feel nervous and afraid to recite in class?

[No] 40) Do you feel that your teachers are unsympathetic and do not understand you?

[Yes] 41) Do you feel on friendly terms with your teachers?

[Yes] 42) When you have trouble with your work in a class, do you talk over the matter with your teacher?

[Yes] 43) Do you find your work interesting?

[Yes] 44) Do you participate in class discussions?

[No] 45) Do you converse with your neighbors during class time?

[No] 46) Do you try to sit toward the back of the classroom?

[Yes] 47) Do you try to figure out what the teacher will emphasize in quizzes?

[No] 48) In preparing an assignment, do you try to memorize the exact words of the text?

[Yes] 49) Do you make a preliminary survey before reading a chapter in detail?

[No] 50) Do you skip the tables and graphs that you find in your reading?

[No] 51) Do you have trouble in understanding graphs or tables?

[Yes] 52) Do you make simple charts, diagrams, or tables of your own to summarize material in your reading?

[Yes] 53) After reading your lesson through once, do you recite it to yourself to see how much you can remember?

[Yes] 54) Do you read a chapter's summary before reading the chapter itself?

[Yes] 55) Do you read through the paragraph headings of a chapter before starting to read the main text of the chapter?

[Yes] 56) When you are reading an assignment and come to a word you do not know, do you look it up in the dictionary?

[No] 57) In class do you take notes just about as fast as you can write, during most of the hour?

[Yes] 58) When you are reading, do you take notes in your own words, rather than use the exact words of the author?

[Yes] 59) Do you organize your reading notes in outline form, so that the important points stand out?

[Yes] 60) Do you take your class or lecture notes in outline form, so the important points stand out?

[No] 61) Do you take notes on the backs of envelopes, or odd loose sheets of paper, instead of in a notebook?

[Yes] 62) Do you keep your notes on one subject together in your notebook?

[No] 63) Do you have difficulty expressing yourself in writing?

[No] 64) Do you have difficulty making complete sentences when you write?

[No] 65) Do you try to memorize the exact words of a text in preparing for an examination?

[Yes] 66) In each course, do you have regular times for review?

[Yes] 67) Do you try to analyze your difficulties and thus find out your weak points?

[No] 68) Do you get excited over examinations?

[No] 69) If an examination is given unexpectedly, do you fail or get a low mark?

[No] 70) Do you sit up late preparing for an examination?

[No] 71) Do you do most of your reviewing for a course the night before the final?

[Yes] 72) Do you use what you learn in one class to help you in other classes?

[Yes] 73) Do you try to associate the ideas of a chapter with those you now know?

[Yes] 74) If asked for examples, do you give ones from your own experience or observation rather than examples you have read in the assignment?

[Yes] 75) Do you plan your answers to an examination before you start to write?

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SOCIO-PSYCHOLOGICAL VECTORS IN THE BEHAVIOR AND ATTITUDES OF CHILDREN. II: AWARENESS OF ACCEPTANCE STATUS*

VIOLA CAPREZ AMES

Graduate Record Examination

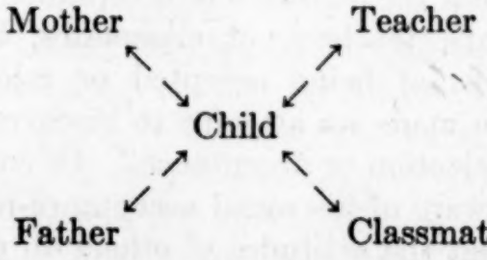
INTRODUCTION

Three candidates for the doctor of philosophy degree in the Division of Education and Applied Psychology at Purdue University made three coördinated studies of the same group of children. Through this method they were able to gather more data concerning each child and to exchange pertinent information.

The studies were designed to investigate some of the social and psychological variables which may be influencing the attitudes and behavior of children.

The present study, Part II, was concerned with the problem of the child's awareness of his social acceptance status. It proposed to study the following questions: (1) Are children aware of how well they are accepted (liked) by their classmates at school? (2) Is there a relationship between the child's opinion of his social acceptance and his feelings of conflict (unhappiness)? (3) Are there behavior patterns which are typical of the child who feels rejected, and likewise for the child who feels accepted? An incidental question was also examined. Do sixth-grade children and adults assign comparable scale values to items on an attitudes scale?

The areas to be studied in the three theses might be represented in this manner:



* This study was done in partial fulfillment of the requirements for the Doctor of Philosophy degree at Purdue University, April, 1943, and was carried out under the direction of Dr. H. H. Remmers. Funds for this research were provided by the Division of Education and Applied Psychology of Purdue University.

Obviously the child is not a detached unit acted upon by each area separately, but rather a part-unit acted upon and reacting to all four relationships simultaneously. The child's attitudes cannot be studied in isolation from all of these relations, neither can he be separated from all but one and the single interaction studied. The relationships play upon the child constantly and simultaneously and his reaction to any one is influenced by all four. Not only must we be aware of the presence of all of these influences as determiners of behavior at any one moment, but we must take into account the child himself. Is the child's behavior determined entirely by the actual attitudes and behavior of these four sources of influence or is it, at least in part, influenced by what he believes these attitudes to be? Is it possible the child may believe his classmates do not like him and react accordingly, when in truth the classmates accept the child completely? If the child always reacts to the true state of affairs the problem is simplified considerably—we may either determine the true attitude of the parents, teacher, and classmates and predict the child's behavior, or note the child's behavior and know the attitudes present. However, if the child's own attitude is a partially independent variable the problem is not so simple. We know from clinical studies that the reaction of two children to what appears to be identical problems is not always the same. One child may become rebellious, whereas the other becomes submissive. The ultimate determiner of the child's reaction to a situation may be within the child himself, a feeling of rejection, either with or without foundation, may color his reactions to all of these areas.

The thesis proposed here is that the ultimate determiner of the child's reaction is not the attitudes of acceptance or rejection on the part of parents, teachers, or classmates, but rather the child's own feelings of being accepted or rejected by these persons. We have made no attempt to discover the source of these 'feelings of rejection or acceptance.' Of course, if we find that the child is aware of his social acceptance-rejection status, we may assume that the attitudes of others do produce certain reactions in the child, but if we find no correspondence between the two we must doubt that the attitudes of others necessarily produce certain behavior in the child. In case we show evidence that the child's concept of his social acceptance-rejection status

is not necessarily related to his 'true' social status, then the problem of determining the source of the conflict becomes important.

We hoped to approach the problem from both the clinical and statistical point of view. The results of either a statistical or a clinical study alone would be open to doubts. A clinical study depends too much upon the opinion, training, and skill of the clinician. Its results are subjective and not easily quantified. It is usually limited to a few cases because of the time and work involved. Consequently generalizations are dangerous.

On the other hand, although a statistical analysis permits the study of a large number of cases (canceling chance variations) and the quantitative measurement of isolated variables, the validity of the measuring instrument is always open to question for a number of reasons: the test may not be measuring what it purports to measure; the variable may not permit of isolated measurement, and the results of the test are dependent upon the willingness and ability of the subject to coöperate in answering the questions posed. In a clinical study the clinician has opportunity to note the emotional reaction accompanying a question and to interpret its significance upon the answer given, whereas in a statistical study a 'yes' or 'no' must be taken at its face value with the hope that the erroneous answers cancel each other, and the end result is a picture of the true state of affairs.

A statistical analysis permits the problem to be broken into variables, and the strength, direction, and interrelation of these variables shown, while a clinical study presents a picture of the integrated end results of the influences of these variables. Both approaches are important.

This study was of necessity only exploratory. In the first place, no suitable tests were available, consequently measuring instruments were either revised or constructed. This meant that the tests used were not submitted to the refinement which would undoubtedly have added to their reliability and validity. Secondly, being unaware not only of the nature of the variables present, but also of their direction and strength, we were forced to postulate certain hypotheses and make tentative explorations. It is hoped that these studies will at least point out the necessity for further study in these areas, particularly the need for the construction of suitable tests.

In addition to these limitations the clinical study was too sketchy, too few cases were used, and the clinical observations too superficial. This was due partly to a lack of time and to the difficulty of bringing normal children into clinical conferences without producing a disturbance which might color the relationships studied.

SOCIAL ACCEPTANCE SCALE

The criterion to be used for the 'true' social acceptance-rejection status of a child was the degree to which the class as a whole accepts (likes) or rejects (dislikes) each member of its group. In order to construct a test which would permit each member of the class to indicate the degree of his acceptance or rejection of each of the other members, Smalzried* combined Moreno's[15]

TABLE I.—NAME GAME

This is a name game where we use numbers instead of names. On the blackboard you will find the names of all your classmates. Each has been given a number. You are to use their number instead of their name in this game.

This is the way you play this game. I will read the sentence like this, "Somebody thinks I play games the best." Now—you write the number of the person who thinks that about you. Write the number on the line at the end of the sentence.

1. Somebody thinks I play games the best. _____

Now sentence two

2. Somebody thinks I do well in school. _____
3. Somebody thinks I am always late. _____

You may use anybody's number any place you think it fits.

Use a boy's or a girl's number any place it fits even if the sentence says he.

If no number fits a sentence leave it blank.

Do not use your own number.

1. Somebody thinks they would like to get even with me. _____
2. Somebody can not stand me. _____
3. Somebody just loves me. _____
4. Somebody thinks I play hooky. _____
5. Somebody feels sorry for me. _____
6. Somebody thinks I am spoiled. _____

* N. T. Smalzried was one of the three students who collaborated in this study.

7. Somebody thinks I don't play fair. _____
8. Somebody thinks I remember to say thank you. _____
9. Somebody would like to sit with me. _____
10. Somebody thinks I take pride in my work. _____
11. Somebody thinks he should be careful of me because I will work him for all he's got and then not know him. _____
12. Somebody thinks I won't be it when I am touched. _____
13. Somebody thinks I make faces at him. _____
14. Somebody thinks I run around with older kids. _____
15. Somebody thinks I am a better kid than most people think I am. _____
16. Somebody chooses me first in games. _____
17. Somebody thinks I am his best friend. _____
18. Somebody thinks it's no use to ask me for anything, I'm too selfish. _____
19. Somebody thinks I'm a quitter. _____
20. Somebody thinks I am sassy to grownups. _____
21. Somebody thinks I am not so bad. _____
22. Somebody thinks I am friendly. _____
23. Somebody would like to have me in his family. _____
24. Somebody thinks I shouldn't get near any money. It isn't safe. _____
25. Somebody thinks I'm always butting in. _____
26. Somebody thinks I'm a dumbbell. _____
27. Somebody thinks I always wink. _____
28. Somebody thinks I try to tell everybody what to do. _____
29. Somebody thinks I act up when the teacher is gone. _____
30. Somebody thinks I am lazy. _____
31. Somebody thinks I can do things if I try. _____
32. Somebody thinks he and I have a lot of fun together. _____
33. Somebody would spend his money to buy me something. _____
34. Somebody thinks I don't get my lessons. _____
35. Somebody thinks I'm fun when you get to know me. _____
36. Somebody thinks I'm awfully quiet. _____
37. Somebody thinks I do what I'm asked to do. _____
38. Somebody thinks I have lots of pep. _____
39. Somebody thinks I can read the best. _____

method of measuring social acceptance with Thurstone's[23] equal-appearing intervals method for constructing an attitudes scale. The result was an attitude scale of thirty-nine items scaled by equal intervals along a continuum of best liked through a neutral point to least liked. The child filling out the scale

ranks his classmates relative to the continuum by allocating them a position corresponding to an item on the scale.

The items for the Social Acceptance Scale were collected from mothers, teachers, social workers, directors of child institutions and from children themselves. The items were exact expressions of opinions of children concerning their classmates (John is bossy; I fight with Mary, etc.). One hundred ninety-five items

TABLE II.—THE COEFFICIENTS OF RELIABILITY FOR THE SOCIAL ACCEPTANCE SCALE

School Number	*N*	Coefficient of Reliability*
1	43	.67
2	32	.84
3	35	.72
4	33	.83
5	31	.70
6	40	.91
7a**	23	.86
7b	44	.78
8a	22	.72
8b	33	.88
The test-retest coefficient of reliability		
School Number	*N*	*r*
7b	44	.83

* These are split-half reliability coefficients stepped-up with the Spearman-Brown formula as given in Peters and Van Voorhis[17].

** Schools 7 and 8 had two sixth-grade rooms. Schools 7b and 8b are these extra rooms.

were collected. They ranged from complete acceptance (I just love Sue) to extreme rejection (I just hate Thomas).

The statements were scrambled—a graphic scale from 1 to 9 preceding each statement. Forty college students and professors in psychology were asked to rank each item on the graphic scale. Number '1' represented complete dislike, Number '5' a neutral position, and number '9' complete acceptance.

The median value given by the raters to an item was assigned to that item as its final scale value. No item was used which had a dispersion of a 'Q' equal to more than 1.0. The median values for the thirty-nine items ranged from 0.6 to 8.5 with an

interval of 0.2 along all of the scale except near the neutral point (5.0), where the interval scale value varied to a small degree.

The reliability of the scale was estimated separately for ten classrooms by means of the split-half method stepped up by the Spearman-Brown formula and by a test-retest correlation for one classroom. The split-half reliabilities ranged from .67 to .91. The test-retest coefficient was .83.*

The Social Acceptance Scale was given to ten classrooms of sixth-grade children. Each child was asked to indicate at the end of each item on the scale those of his classmates to whom that item applied. The median of all the values assigned by the class to a single child was taken as an index of his true social acceptance-rejection status within the class.

To investigate the hypothesis that to be reliable the items of an attitude scale must be scaled by a group comparable to the group for which it is designed, the scale values assigned to the thirty-nine items of the scale by the college students and professors of psychology were correlated with the values assigned to the same items by a group of twelve-year-old children.[8] The correlation coefficient was .93 ± .02. Apparently for all practical purposes sixth-grade children did assign the same scale values to these items as did adults.

As the study continued it became apparent that the scale had its limitations. Two or three of the items are obviously invalid. For example, the item "_____ plays hooky" is a statement of fact and does not necessarily indicate an attitude. The interval between items is not constant in the neutral area, and a few items changed position on the scale when scaled by children. On the whole, however, the scale had fairly high reliability.

The use of the median of the assigned values as an index of the social acceptance status of a child is also open to question. For instance, a child might be mentioned by only four or five members of his class, in which case the median value of his ratings by these four or five children was used to represent the attitude of the entire class. Let us say the median falls at 5.0. The fact that he is ignored by three-fourths of the class is probably more significant than the median value of these few ratings.

In another case a child might receive several very high ratings and several very low ratings; the median again falls at 5.0,

* See Table II.

whereas all of the scale values received by a third child might fall somewhere around the neutral area and the median again would be 5.0. Obviously these three children do not have the same quality of social acceptance. The first child failed to make an impression on his classmates as a group. The second child has made a vivid impression; he is extremely popular with a few and extremely unpopular with others. The third child is acknowledged by all classmates, but he is neither liked nor disliked to any extreme degree. The median value in these three cases may be the best quantitative estimate of their social status, but there is a qualitative difference which is not taken into account.

SAMPLES

Two samples were selected to be studied, a large and a small. All of the sixth-grade children (three hundred ten in ten classrooms from eight different schools) were studied as the large sample. From this large sample a stratified sample of thirty-two children was drawn, one rejected, one accepted, and one neutral (neither accepted nor rejected) child from each classroom. This gave a stratified sample of ten accepted, ten rejected, and ten neutral children. Two other children were included— twin of a member of the sample and a child with personal characteristics which made him an interesting subject.

In the small sample an attempt was made to hold constant as many variables as possible which might be operative. Only sixth-grade boys from unbroken homes were selected. Some attempt was made to limit the range of chronological age and intelligence. The chronological age range of ten years and nine months to fifteen years was considered normal for sixth-grade classes in general. The range of IQ's from 73 to 135 was considered usual for sixth-grade classes.

Sixth-grade pupils were selected for study because it was thought that children at this level probably are mature enough to answer reliably the tests given and at the same time young enough to give some indication of the attitudes and behavior of elementary-school children as a group.

The ten boys (one from each classroom) who made the highest Social Acceptance scores and met the criteria already mentioned were selected as the 'Accepted Group.' The ten boys with the lowest Social Acceptance score were called the 'Rejected Group,'

and the ten who made scores nearest the midpoint of the scale were called the 'Neutral Group.'

THE AWARENESS SCALE

The next problem was to construct an instrument which would evaluate the child's expression of his opinion of how well he is liked by his classmates. The scale would have to be sufficiently subtle to prevent the child from realizing that he is revealing his 'feeling of acceptance or rejection.'

From Smalzried's scale designed to permit each child to rate his classmates relative to a social acceptance continuum, an Awareness of Social Acceptance scale was constructed by restating each item so that the rater now rates himself relative to an acceptance continuum.

Each of the thirty-nine items were restated. For example, the item "I just love ____" was written "Somebody just loves me. _____."*

The restated items were then scaled by forty students and professors of psychology in exactly the same manner as the original scale.

The median of the scale values assigned each item by the raters was used as the scale value of the item. These values were compared to the scale values for the same item on the Social Acceptance Scale. The coefficient of correlation was $.98 \pm .01$.

The items were also scaled by twenty school children (grades V, VI, VII, and VIII). The correlation of these values with those of the adults was $.96 \pm .01$.

The Awareness Scale was given to the total group of children, with instructions to 'not' sign their papers. They were told that neither the teachers nor classmates would be permitted to see their answers.

The reliability of the scale was estimated for each classroom by the split-half method. The reliabilities ranged from .52 to .88.† An examination of the scale results showed the same picture as was found for the Social Acceptance Scale. Some children mentioned only one or two classmates; others indicated

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* See Table I.

† See Table III.

that they were extremely disliked by one group of classmates, but very much liked by a second group; while a third child indicated that the class as a whole neither liked nor disliked him. These qualitative differences were not taken into account in scoring the scale.

The unreliability of the scale may also indicate that the child's conception of acceptance may fluctuate from time to time depending on his mood.

TABLE III.—COEFFICIENTS OF RELIABILITY BY SCHOOLS FOR THE AWARENESS SCALE

School	N	Split-half Correlations	Spearman-Brown Correction
1	39	.786	.88
2	29	.565	.72
3	31	.698	.82
4	34	.616	.76
5	29	.350	.52
6	35	.367	.54
7a	55	.673	.80
7b			
8a	44	.769	.87
8b			
Total	296	.650	.79

The Spearman-Brown formula was used in correcting the split-half coefficients.

RELATION OF SOCIAL ACCEPTANCE STATUS AND AWARENESS OF ACCEPTANCE STATUS

Since we had at hand complete data on a large sample of two hundred seventeen sixth-grade children and a small stratified sample of thirty-two children, it seemed useful to make the various comparisons for both groups.

The score on the Social Acceptance Scale was used as an index of the degree to which the classmates as a whole accepted each child. The score on the Awareness Scale was used as an index of the degree to which a child can estimate his acceptance by his classmates as a group. The correlation of the two indices was found for each school, as well as for the total group. (See Table IV.)

The correlations were not considered significant unless they were large enough to meet either the five-per-cent or the one-per-cent level of significance. Since only one significant correlation was found, the eta for each school was computed and the X^2 test for goodness of fit applied to determine whether a curvilinear relationship might be present. The formulas used in finding eta and the X^2 test are given by Peters and Van Voorhis.[17]

TABLE IV.—CORRELATIONS OF AWARENESS SCALE SCORES AND SOCIAL ACCEPTANCE SCALE SCORES

School	N	r	Level of Significance of	Eta	X^2 Test
1	14	$-.22 \pm .25$	Not significant	$.80 \pm .10$	99%
2	23	$-.14 \pm .20$	Not significant	$.48 \pm .16$	99%
3	22	$.10 \pm .20$	Not significant	$.71 \pm .10$	63%
4	24	$.24 \pm .19$	Not significant	$.64 \pm .12$	64%
5	18	$.06 \pm .23$	Not significant	$.35 \pm .21$	99%
6	29	$-.08 \pm .18$	Not significant	$.41 \pm .15$	96%
7*	47	$-.02 \pm .14$	Not significant	$.41 \pm .12$	64%
8	42	$.41 \pm .13$	Significant at 1 per cent level	$.50 \pm .12$	98%
Total	217	$.14 \pm .07$	Not significant	$.18 \pm .07$	98%
Small Sample	32	$.16 \pm .16$	Not significant	$.14 \pm .14$	94%

* Schools 7 and 8 both had two sixth-grade rooms, but the two rooms were combined for computing correlations.

The correlation of .41 in School 8 is significant at the one-per-cent level. The X^2 test showed only two chances in one hundred that the relationship is other than linear. Apparently for one school the variables studied were related to some degree.

However, this analysis gives little indication that children in general are aware of how well they are liked or disliked by their classmates. This does not necessarily mean that no correspondence exists. To the extent that our measuring instruments are invalid and unreliable the results have been distorted. An examination of the individual scales for the small sample, also showed little or no correspondence. Of those who considered themselves well-liked by their classmates, there were some who were completely rejected, some neither liked nor disliked, and

others who were liked. The same was true for the other two categories. It may be that some children find their rejection so unbearable, they compensate by believing themselves completely accepted. This, however, does not explain the completely accepted child who indicated he felt rejected.

SPENCER'S EXPERIENCE APPRAISAL

Spencer[21] in his Experience Appraisal has proposed to measure emotional conflict by permitting the individual to indicate the

TABLE V.—RELIABILITY OF SPENCER'S EXPERIENCE APPRAISAL ESTIMATED FROM THE INTERNAL CONSISTENCY OF THE TEST

Sections Correlated	Correlations	Corrected for Spurious* Correlation
Self-Child	.17 ± .07	
Self-Teacher	.59 ± .06	
Self-Father	.53 ± .07	
Child-Teacher	.51 ± .07	
Child-Father	.42 ± .08	
Father-Teacher	.76 ± .04	
Mother-Self	.70 ± .05	
Mother-Child	.50 ± .07	
Mother-Teacher	.83 ± .03	
Mother-Father	.81 ± .03	
Mother-Total	.93 ± .02	.85
Teacher-Total	.91 ± .02	.85
Father-Total	.85 ± .03	.75
Self-Total	.70 ± .05	.49
Child-Total	.58 ± .06	.49

* The formula used to correct for spurious correlations is given in Peters and Van Voorhis[17].

amount of discrepancy between his own behavior and what he believes to be the ideals and behavior of his parents and his classmates.

Spencer's Experience Appraisal was revised to fit the present study. The twenty-four most suitable items were selected from the original fifty-three. Each item was rewritten in a fourth-grade level vocabulary. Two new sections were added to the test—one for teacher's ideals and one for teacher's behavior.

Since the test was long, it was divided into two parts and given in two examination periods to the same sixth-grade population.

The reliability was estimated by correlating each section of the test with the total score and correcting for spurious correlation. (See Table V.) The correlations range from .49 to .85.

The Experience Appraisal was scored for the following areas: (1) conflict with self; (2) conflict with mother; (3) conflict with father; (4) conflict with teacher; (5) conflict with classmates; (6) conflict at home; (7) conflict at school; and (8) total conflict.

TABLE VI.—THE CORRELATION COEFFICIENTS OF THE AWARENESS SCALE SCORES AND THE CONFLICT SCORES FOR THE LARGE SAMPLE

Awareness Scores versus:	*N*	*r*	Level of Significance	Eta	X^2
Total conflict	217	$-.13 \pm .07$	Not significant	.24	53%
Mother conflict	217	$-.07 \pm .07$	"	.24	35%
Father conflict	217	$-.16 \pm .07$	"	.24	81%
Teacher conflict	217	$-.13 \pm .07$	"	.19	99%
Classmates conflict	217	$-.07 \pm .07$	"	.14	98%
School conflict	217	$-.10 \pm .07$	"	.02	44%
Home conflict	217	$-.11 \pm .07$	"	.02	44%
Self conflict	217	$-.11 \pm .06$	"	.30*	07%

* The epsilon was found to be .04, which is significant at the five-per-cent level.

ANALYSIS OF AWARENESS SCORES AND CONFLICT SCORES

Is there a relationship between the child's opinion of his social acceptance and his feeling of personal conflict? An analysis was made of the large sample. (See Table VI.) No relation was found between the Awareness scores and the various conflict scores except between Awareness and Self-conflict. Here the relation seems to be curvilinear and the epsilon, although small (.04), is significant at the five-per-cent level. Perhaps some children are disturbed by what they believe to be their acceptability to their classmates, but since this correlation is curvilinear it is difficult to determine how the two variables are related.

For the small sample of thirty-two cases the correlation was $-.09 \pm .17$; eta was .37, and the X^2 test for goodness of fit was P = 98 per cent.

We conclude that no relation exists between awareness of acceptance and conflict, except, perhaps, in self-conflict.

THE OBSERVATION RECORD

J. E. Brewer,[2] in a thesis designed to study the variations in behavior of children in the classroom when they are subjected to the influence of various types of teaching methods, devised an observation record blank for recording this behavior. In the present study the Brewer Observation blank was used to record the behavior of the thirty-two children selected as the small sample. Each child was observed for forty minutes by each of the three investigators, making a total of two hours of observation per child. A time-sampling technique was used so that each observer watched each child for an interval of five minutes,* spacing the observations so each day of the school week samples were made of both the recitation and study periods devoted to each subject. The observer stood either at the back or to the side of the room in such position as to observe the child easily and unobtrusively.

TABLE VII.—CORRELATIONS OF AWARENESS SCORES AND THE TALLIES FOR THE BEHAVIOR CATEGORIES

Variables—Awareness vs:	N	r	Eta	X^2	ϵ^2	Level of Significance of
Nervous habits	32	$-.24 \pm .17$	.57	74%	.01	Not significant
Conformity	32	$-.15 \pm .17$	.47	83%	−.21	Not significant
Non-conformity	32	$.12 \pm .17$	.31	99%	−.39	Five per cent
Class participation	32	$.08 \pm .17$	.33	99%	−.38	Five per cent
Class contribution	32	$.05 \pm .18$	.29	99%	−.42	Five per cent
Asks for help	32	$.03 \pm .18$	.51	95%	−.15	Not significant
Special contacts responses	32	$.13 \pm .17$	.57	53%	−.04	Not significant
Social contacts—voluntary	32	$.08 \pm .17$	.50	82%	−.16	Not significant

About three weeks were spent in learning the blank, practicing recording, and establishing the reliability of the observations of the three investigators. The reliability of the observations was found by finding the per cent of agreement of recordings. The agreement for observations of children was ninety-eight per cent; for teachers ninety-one per cent.

* Olson[16] found the five-minute interval to be optimum for classroom observation.

In no case was the difference between means for the Acceptance score, Awareness score, and the total tallies for each of the seven types of behavior for each child in the small sample found to be statistically significant.

The problems to be analyzed in this section were: Are there behavior patterns which are characteristic of accepted or rejected children? And do these patterns correlate with the child's concept of his acceptance?

The correlations of Awareness scores and the tallies for the behavior categories are given in Table VII. No highly significant correlations were found. Three correlations, however, were significant at the five-per-cent level. No significant linear relation was found, but the three significant epsilons indicate that a curvilinear relation may be present, between the Awareness scores and non-conforming behavior, class participation, and class contributions.

Here again we have little evidence that a relationship exists between awareness of social acceptance and behavior in the school room, at least.

SUMMARY AND CONCLUSIONS

Three questions were under consideration in this study: (1) Are children aware of how well they are accepted (liked) by their classmates at school? (2) Is there a relationship between the child's opinion of his social acceptance and his feelings of conflict (unhappiness)? (3) Are there behavior patterns which are typical of the child who feels rejected, and likewise for the child who feels accepted? In addition the problem, do sixth-grade children assign comparable scale values to items on an attitude scale, was investigated.

The sixth-grade children of ten classrooms from eight different schools (three hundred ten children) were studied. From this large group a stratified sample of thirty-two children was selected for special study. The stratified sample included ten accepted, ten rejected, and ten neither accepted nor rejected children. (One from each classroom).

The criterion for selection of the small sample was the score made on Smalzried's Social Acceptance Scale.

Correlations of the Social Acceptance scores and the Awareness of Social Acceptance scores gave little evidence that children are

aware of how well they are liked by their classmates. Only one school showed a statistically significant correlation (.41 ± .13). However, it cannot be concluded that no relation exists between the two variables. Not only are the reliability and validity of the scales open to question, but also the method of approach to so complex a problem.

There seemed to be little indication that the child's feelings regarding his social acceptance was related to his feelings of unhappiness or conflict in any of his relationships unless it was with self-conflict. (The epsilon of .04 is significant at the five-per-cent level.)

The evidence for the existence of behavior patterns which typify the child who feels rejected, and the child who feels accepted, is also meager. Three of the correlations were significant at the five-per-cent level. The correlation of the Awareness scores and non-conforming behavior was $\epsilon^2 = -.39$; the correlation of Awareness scores and class participation was $\epsilon^2 = -.38$, and the correlation of Awareness scores and class contributions was $\epsilon^2 = -.42$. There may be a relation between awareness of acceptance and certain classroom behavior, but there did not appear to be any definite behavior pattern for either the child who feels accepted nor the child who feels rejected.

There seems to be some difference of opinion as to whether a rating scale scaled by adults is a reliable scale when used for children. In the present study it was found that sixth-grade children assigned practically the same scale values to the items on both the Social Acceptance Scale and the Awareness Scale as did the adults. The coefficient of correlation between the scale values assigned to the items on the Social Acceptance Scale by children and by adults was .93 ± .02. The coefficient of correlation between scale values assigned the items of the Awareness Scale by children and by adults was .96 ± .01. An analysis of the individual items upon which the children and adults disagreed indicated that the disagreement was due to the invalidity of the item for both groups, rather than to a disagreement in the scale value to be assigned.

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THE APPLICABILITY OF PSYCHOLOGICAL RESEARCH TO EDUCATION*

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Whether the results of laboratory experimentation are applicable to the larger activities of everyday life seems to be a matter of controversy more often in psychology than in any of the other sciences. Presently, the question of the applicability of psychological laboratory findings to practical learning situations is quite prominent in the field of educational psychology.

Eurich and Carroll[4], for example, in their *Educational Psychology*, a 'functional' text that leans throughout upon research findings, hold that practically no results of psychological experimentation have been useful to the teacher. Commenting upon the mass of experimental evidence that has accumulated in regard to learning problems, they point out that "the results of learning experiments are unfortunately limited in their application because so few of them have dealt with complex classroom situations" (p. 309). "Most experiments have been conducted with animals or with relatively simple materials that are remote from the complex learning that occurs in the classroom" (p. 328).

In discussing the purpose and scope of 'The Psychology of Learning,' a recent yearbook written by leaders in the field, McConnell[6] stresses more intensive research on practical learning problems in which pupils are the subjects and the school and the community are the laboratories. "The authors have built, wherever possible," he states, "upon principles which are common to the theories of learning outlined in the first section, but in most instances have depended primarily upon experimental evidence for their material, with emphasis on that which has come from research with human subjects on educational problems" (p. 12).

More recently, Davis[1] not only challenged the value of psychological research on animals and on human adults, so far as application to human learning in general and to schoolroom

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* The views expressed in this article are those of the author, and are not to be construed as official or as reflecting the views of the Army.

learning in particular is concerned, but also emphasized the point that principles of learning based on studies of children in the artificial isolation of the psychological laboratory are equally inapplicable. The limitations of psychological laboratory results, due to the scarcity of investigations in which children have been used as subjects, he contends, have been generally recognized. "It has not been generally recognized, however, that even though laboratory materials be meaningful, and the subjects be school children of varying degrees of maturity, generalizations on schoolroom learning are of doubtful validity if limited to analysis of a learner's efficiency in mastering a constant verbal or motor task" (p. 21).

Clearly the trend indicated here is toward the establishment of a sharp line of division between general theoretical psychology and psychology employed for primarily practical ends. It explicitly accepts the view that theory and practice are poles apart; that the differences, in goals and working conditions, between the 'pure' and the 'applied' sciences can not be dismissed. Laboratory conditions are not typical of those met in everyday life. Consequently, so the reasoning goes, learning curves, MA's, SR's, CR's, Tolman's schematic drawings, Lewin's topological diagrams, Kohler's figure-and-ground patterns, etc., may be appropriate on a professor's blackboard or in the journals of pure science, but they are barren and inadequate in the realm of flesh-and-blood reality. "Scientific instruments best serve science; methods designed to meet the purposes and circumstances of instruction will best serve teachers" (p. 13).

Since, in this view, psychology and educational psychology differ fundamentally with respect to purposes and methods, generalizations derived from the former, it is held, are of very little help to the latter. Instead, therefore, of adapting the principles of psychology for educational use, there is, as Davis[1], (p. 29) asserts, no reason why educational psychologists should not develop their own theories of learning and techniques of research. "Educational psychology, through a study of the practical problems of the classroom teacher, may in time attain a degree of intellectual respectability in its own right" (p. 29).

That the preoccupations of the scientist seem rather remote from the myriads of individual face-to-face situations of practical life, in all their variety, can not be denied. Nevertheless,

science is not entirely 'outside of this world.' What the proponents of the 'theory vs practice' standpoint overlook is that the activities of the scientist are only temporarily detached from practice "for the sake of wider and freer application in later concrete action"[2] (266–267). When, for example, the supply of quinine for the manufacture of light polarizers was cut off, Woodward and Doering set out to seek a substitute. Even though related to and motivated by a practical situation—a shortage of natural quinine in the polaroid lens industry—their researches were carried on separately, in temporary isolation from the factory. The wooden model of the chemical symbol which guided their work—a fantastic arrangement of spheres joined by short sticks, believed by scientists to resemble the quinine molecule—might not seem to fit well into a situation in which men were dying from malaria. Yet, just such an impractical-looking affair led to the production of quinine without the aid of the cinchona tree, and to important developments in both the chemical industry and the military situation in the jungles of the Pacific. Likewise, results obtained in Flemming's penicillin experiments, conducted with animals in the laboratory, have been successfully applied under the highly complex battle conditions of modern warfare. Indeed, it is only through functional use in practical concrete settings that the validity of scientific conclusions can be and are finally determined.

As in the case of geometry, which, it has been frequently observed, arose in response to the need for solving practical problems, scientific theory is rooted in practice; it neither begins nor ends in the laboratory. The same reciprocal interrelationships between theory and practice obtain in psychology. Binet's theory of intelligence took form from an attempt to solve the problem of segregating children in the schools of Paris. It returned to the domain of practice embodied in his intelligence tests, and is, even today, the basis of many of the instruments applied in educational surveys, employee selection and classification programs, vocational guidance, and other types of personnel work. Similarly, the theory of the transfer of learning originated in the schools from the practical experience of teachers. High school teachers noticed that the pupils who studied Latin and mathematics consistently stood high in other school subjects. It was but a short step from many such observations,

extending over a period of years, to the generalization that the thinking and reasoning processes developed in the mastery of Latin and mathematics carried over to other fields. In testing this generalization scientifically, however, Thorndike, Woodworth, and other psychologists found no significant differences in improvement in the ability to think between pupils who had studied Latin and mathematics and those who had not—a conclusion, which far from being serviceable for theoretical purposes only, had an effect upon subsequent practices not unlike that of casting a veritable bombshell into the classroom. Systematically tested conceptions go beyond the laboratory door, and eventually reach the market place; the flow from practice to the experimental laboratory and back to practice again is an unbroken continuum.

Those who speak of theories developed in the laboratory and principles developed in the classroom, of building on some of the theories of learning but placing primary emphasis on 'practical' evidence, of the great harm that restricting the teacher to scientific evidence would do to education[7] (p. 8), etc., seem to regard theory as the exclusive property of the laboratory. As a matter of fact, theories may and do arise anywhere—in the schoolroom, the shop, the battlefield, the proving ground of the engineer, or the workroom of the physicist. The laboratory experiment is merely a setup designed to test a proposed generalization. Physicians working in the field, for example, found that certain cases did not respond to treatment with penicillin, and arrived at the conclusion that penicillin was not effective in diseases caused by the bacteria Staphylococcus aureus. When Kirby grew the Staphylococcus aureus and penicillin in the same culture in his laboratory, and found that the Staphylococcus aureus quickly killed the penicillin mould, he was dealing with the same, not with a different, attempt to explain fact. In like manner, a psychologist may, from the results of laboratory experimentation, arrive at a theory bearing upon the nature of learning. The educational psychologist, who recommends an educational plan or a curriculum organization based on the psychologist's results, does not adapt the theory; he tests it. The activities of the teacher who puts the educational psychologist's program into actual operation in the classroom constitute a further test of the

same theory. We do not have one set of theories in experimental psychology, another totally unrelated set in educational psychology, and a third in the classroom. All, the psychologist, the educational psychologist, and the educational practitioner, deal with the same theory. If schoolroom learning is facilitated by application of the theory, that means that the claims of the theory are substantiated, and that the theory is thereby made more secure.

Moreover, exact duplication of laboratory conditions is unnecessary in testing the theories of science. A little ingenuity rather than a slavish copying of the psychologist's experimental setups is the primary requisite. Pavlov's conditioning experiments, as is well known, required the harnessing of his animals in such a way as to confine their activities to but one way of response. Jones[5], on the other hand, in her studies in conditioning theory, boldly took an everyday life situation—a child playing about in a room—as her experimental situation. Nor is the experimental investigation of learning essentially limited to the acquisition of simple, constant tasks. Koffka's[8] experiments, and those of many other psychologists, demand a continual reorganization of material as a prerequisite to advancement.

Equally untenable is the notion that scientific theories are offered as permanent axioms from which all further principles must be deductively derived. On the contrary, they are hypotheses, tentative generalizations to be verified by the consequences to which they lead in application. Thus, scientific test constructors seldom regard their product as fixed and final as is evident from their score sheets and printed forms requesting the practitioner to send reports of his results to the author, and from the many revisions and revisions of revisions of well established tests that have taken place during the past twenty-five years. Writers in testing theory repeatedly call attention to the fact that test scores indicate probabilities; that the estimates they yield are starting points in the process of evaluation—preliminary estimates which must be continually modified in the light of future observations. That psychologists did not regard the 'general ability' theory of intelligence measurement as a generalization that could not be overthrown by any amount of subsequent investigation is clearly shown by the fact that some of its

advocates have replaced it by the 'separate abilities' theory. Lashley accepted the 'specific paths' theory of brain action until subsequent experimentation ceased to yield results required by that theory, and led him to abandon it for the 'mass action' theory. It is interesting to note also in this connection that even though the 'specific paths' theory, which Lashley accepted, determined his methods of investigation, the results he obtained did not in turn support that theory.

Again, the application of the findings of science is as much a matter of experiment as was the work of establishing them in the laboratory. After the experimental chemist has made a new discovery, experimentation for commercial production, on the part of the chemical engineer, just begins; and is followed, upon completion, by more experimentation by the practitioner in the field. The discovery of penicillin, mentioned above, is a case in point. Much experimentation remained to be carried out subsequent to Flemming's initial success. First of all, Flory organized a research team to investigate the problem of large-scale extraction in quantities for medical use. Then followed the tedious processes of experimentation with mice; the long, hazardous step to experimentation in the treatment of humans; and considerable experimentation in the medical profession before physicians were able to determine which diseases penicillin helps, and to set up tentative schedules of dosage.

Much more than simply taking a formula 'down from the shelf' is involved in the processes of application. Applications are integral parts of the verification of the generalizations themselves. "The drainage of swamps where anopheles mosquitoes breed is prized because it helps to eliminate malaria. But from the scientific standpoint it is an experiment which confirms a theory"[3] (pp. 438–439). The various educational practices, too —individual instruction, the socialized recitation, the contract plan, homogeneous grouping, the activity program, etc.—are of the nature of experiments which test psychological theories. For teaching, like the practice of medicine, is an art which makes use of experimental evidence systematically corroborated in the laboratory. There is no hiatus between the techniques and methods of the teacher, who has developed the habit of scientific thinking, in attacking the unique problems that arise in practical

schoolroom work, and the techniques and methods of the scientist in testing generalizations in the laboratory.

In this process of making a continual checkup on the fundamental concepts of learning theory, the educational psychologist bears somewhat the same relationship to psychology and to education that the mechanical engineer bears to physics and, for example, to aviation, or that the chemical engineer bears to chemistry and to the medical profession. His function is that of providing material for further testing in the field; of making the findings of the laboratory available to the educational practitioner for trial in the classroom. But, in order to fulfill this function, he needs more than just the bare findings of psychology; he "needs to take over from the experimentalist not his results only but his attitude and general method"[9] (p. 270).

Only when educational psychology recognizes that, even though supported by the most exact experimentation, psychological theories are hypotheses; and that, though often not explicitly formulated, educational practices imply the acceptance of underlying psychological theories, can it become a factor of consequence in the solution of the problems of learning. Instead, then, of wishing to seize upon some psychological theory or principle which may be put to immediate use, it will treat the theories of psychology as generalizations to be tried out—to be tested by ascertaining whether their operation in specific, concrete cases will produce results agreeing with their demands. It will serve as the agency through which psychological theory guides and directs educational practices toward improvement.

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ARE ONLY CHILDREN DIFFERENT?

DOROTHY TUNELL DYER

Bucknell University

Because approximately one-fifth (more than twenty-one per cent) of the freshman women at Bucknell University during the last three years have been only children, and because many people assume that only children have peculiar problems of adjustment, this study has been conducted to investigate this assumption and to determine the nature of any such problems.

A brief summary of the literature regarding the proportion of only children to other orders of birth and studies of only children made at the college level follows. Carter[1] in a recent unpublished study says: "The proportion of only children to other orders of birth is not constant or uniform throughout the general population, but it varies a good deal with different types of communities, different paid-economic levels, different occupational classes, different age groups and different races and nationalities. The greatest extremes ranged between approximately six per cent and twenty-eight per cent. . . . College students varied from 12.8–21.5 per cent with a general average of 16.3 per cent."

Ogburn[2] says: "In the case of the one-child family . . . the percentage of one-child homes has neither increased nor diminished since 1900, remaining around twenty-five per cent during the whole period."

Few reliable studies have been made of only children at the college level. Stuart[3] in his study of the emotional stability of four hundred sixty-five Colgate men, using the Laird-Colgate Mental Hygiene Test, concluded that "the data fail to confirm the alleged tendency to emotional instability."

Fenton[4] in his study at Ohio University concludes: "only

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[1] Carter, William Paul. *The Only Child in the Family: A Comparison With Other Orders of Birth.* A Dissertation submitted to Faculty Of Division of the Social Sciences in candidacy of Ph.D. of Sociology. Department of Sociology, University of Chicago, Chicago, Ill., 1937.

[2] President's Research Committee on Social Trends. Ogburn, W. F. *Recent Social Trends in the United States.* I, pp. 683–698, 1933.

[3] Stuart, John C. "Data on the Alleged Psychopathology of the Only Child," *Journal of Abnormal Psychology,* 1926, v. xx, p. 441.

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children in college show no more tendencies toward emotional instability than do other students." The Thurstones[1] gave the Thurstone Personality schedule to six hundred ninety-four freshmen at the University of Chicago. They found no significant difference between the scores of the oldest, youngest and only children. Campbell[2] concluded from his data on two hundred students at the University of Oregon that "women only children made significantly higher scores on neuroticision and introversion and somewhat lower scores on self-sufficiency and dominance. Practically identical grade point averages were made by only children and non-only children."

Carter[3] in his study finds that "all indices of social adjustment and participation in the statistical data for the college period indicate that contrary to current theory and popular belief, fairly large proportions of only children of both sexes were quite well adjusted and that only small percentages were more or less unadjusted." He concludes: "In the studies of college students no significant differences were found between only children and others on nearly all tests in regard to emotional stability, neurotic tendencies, physical development, health, scholarship and several personality traits."

The present study continues research on the only child at the college level. For the three freshmen classes—1944, 1945, 1946—the only children among the dormitory resident women in each freshman class have been paired with a control group of non-only children on the basis of the following criteria:

1) Scholastic ability as judged by scores on the American Psychological Examination each fall.
2) Chronological age.
3) Socio-economic background.
   (a) educational level of parents
   (b) occupational level of parents
   (c) home locality
   (d) high school activities

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[1] Thurston, L. L. and Thurston, T. G. "A Neurotic Inventory," *Journal of Social Psychology*, 1930, v. 1, p. 3–29.

[2] Campbell, Albert A. "Personality Adjustment of Only Intermediate Children." *Ped. Sem. and Journal of Genet Psychology*, 1933, v. XLIII, p. 197–205.

[3] Carter, William Paul. *The Only Child in the Family. Op. cit.*

There were one hundred cases studied with an equal number in the control group.

The Bell Adjustment Inventory was administered to each girl at the end of the first semester and the unsatisfactory responses of the two groups compared in each of the four areas measured by the test: Home—Social—Health and Emotional—as well as the Total Score. The Academic achievement of the two groups for the first year was also compared, using the ratio of hours to quality credits* as the criteria.[1]

The responses on the Bell Adjustment Inventory indicate that in the Home Area the only children make a somewhat better adjustment score—there being a difference of thirty-nine unsatisfactory responses in their favor per one hundred cases. (Table I.) The average number of unsatisfactory responses per person for the only child group was 4.66, while the average number for the control group was 5.05.

The Health Area of the Bell Adjustment Inventory indicates somewhat better adjustment score for the control group than for the only child group based on the number of unsatisfactory responses, the difference of sixteen unsatisfactory responses for the total group and .16 per person—a small difference. The average number of unsatisfactory responses per person for the only child group was 7.27 and for the control group 7.11.

In the Social Area the difference in the number of unsatisfactory responses for the only child and the control group was nineteen in favor of the control group, or .19 per person. This is again a small difference. The average number of unsatisfactory responses for the only child group was 10.59 and for the control group 10.4.

The difference in the number of unsatisfactory responses between the only child group and the control group in the Emotional Area was twenty-eight for the total group or .28 per person in favor of the only child group. The average number of unsatisfactory responses for the only child group was 10.51 per person and for the control group 10.79 per person.

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* Quality Credits. "Three quality credits are given for each semester hour graded A, two for each hour graded B, and one for each hour graded C." (From *Bucknell University Catalogue*, 1942–43, p. 33.)

[1] A project of certain members of Psychology 319 (Honors Course) during the years 1940, 1941, 1942. The assistance of Geraldine Pepperman, Jean Dyer, Jean Koebly, Mary Gumpher and Miriam Utt Frank is acknowledged.

TABLE I.—SUMMARY OF THE UNSATISFACTORY RESPONSES ON THE BELL ADJUSTMENT INVENTORY

	Home Area		Health Area		Social Area		Emotional Area		Total Score		Number Cases
	Unsat. Resp.	Av. per person	Unsat. Resp.	Av. per person	Unsat. Resp.	Av. per person	Unsat. Resp.	Av. per person	Unsat. Resp.	Av. per person	
Class 1944											
Only children	70	3.18	167	7.59	233	10.5	231	10.50	732	33.27	22
Control group	106	4.61	152	6.90	247	11.2	238	10.81	743	33.77	22
Class 1945											
Only children	204	5.36	282	7.42	454	11.94	443	11.65	1368	36.00	38
Control group	205	5.37	275	7.21	395	10.39	442	11.63	1317	34.63	38
Class 1946											
Only children	192	4.80	278	6.95	372	9.30	377	9.42	1219	30.47	40
Control group	194	4.85	284	7.10	398	9.95	399	9.97	1275	31.87	40
Total											
Only children	466	4.66	727	7.27	1059	10.59	1051	10.51	3319	33.19	100
Control groups	505	5.05	711	7.11	1040	10.40	1079	10.79	3335	33.35	100

(When comparing the total number of unsatisfactory responses the only child group shows slightly better adjustment, the difference being sixteen responses for the one hundred cases or .16 per person in favor of the only child.)

Another measure of adjustment used in the comparison of the two groups was that of academic achievement. At the end of the first two semesters a comparison of the quality credits and the number of hours of academic work carried was made for the only child group and the control group.

TABLE II.—SUMMARY OF POINTS PER CREDIT HOUR FOR THE THREE GROUPS OF FRESHMEN FOR THE FIRST TWO SEMESTERS

Class	Hours	Quality Credits	Points per Credit Hour	Difference
1944				
22 Only Children	712	1214	1.705	.190
22 Control Group	697	1321	1.895	
1945				
38 Only Children	1214	1918	1.579	.025
38 Control Group	1191	1852	1.554	
1946				
40 Only Children	1155	1806	1.564	.081
40 Control Group	1232	1828	1.483	
Total				
100				
Only Children	3081	4938	1.602	
Control Group	3120	5001	1.602	

While the only child group carried fewer total hours and made fewer quality credits, the ratio of point per credit hour was identical for each group —1.602.

CONCLUSIONS

(1) Only children at the college level seem to be as well adjusted as non-only children when the Total Scores of the Bell Adjustment Inventory are compared for women students. In the Home Area of the Bell Adjustment Inventory the only children show a somewhat better adjustment and in the Emotional Area the slight difference favors the adjustment of the only child. Perhaps a highly selected group of college women, such as that

from which the sample of this study was drawn, both only children and non-only children, contains a large proportion of well-adjusted students.

2) There appears to be no difference in the academic adjustment of only children and non-only children at the end of the first year as judged by the criteria of Quality Credits per credit hour.

3) The findings of this study follow rather closely the results of other investigations at the college level. More investigations using a larger sampling and other techniques of measurement might indicate differences of adjustment which the instruments used failed to identify. There is need of studies following the adjustment of such groups through the period of college training and the years immediately following. Little is known of the vocational adjustment of only children versus non-only children.

INTEREST IN READING THE COMICS AMONG NEGRO CHILDREN

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In other studies data have been presented showing the extent to which white children in grades IV, V, and VI read the comics.* These studies included boys and girls from schools in Evanston and Chicago, Illinois. Children were interviewed and were given a questionnaire on which they were asked to check from a list the comic magazines and comic strips they read, and to indicate whether they read them regularly, often, or sometimes. They were then requested to indicate their favorites, and to add titles not listed.

Similar data were obtained at the same time for two hundred seven Negro children in grades IV, V, and VI of Chicago. The responses of this group will be compared in this paper with the results secured for white pupils of the same grades. The numbers of boys and girls in each grade are given in Table I.

TABLE I.—NUMBER OF PUPILS

	Number of Pupils		
Grade	Girls	Boys	Both Sexes
IV	44	19	63
V	36	33	69
VI	45	30	75
Total	125	82	207

Table II shows that the average number of magazines read by Negro children is considerably higher than the average for white children; about eighteen for the Negro group as compared with thirteen for the white group. It is noteworthy that this strong interest in comic magazines is consistent from grade to grade. Similarity in the averages was noted for boys and for

* Witty, Paul: "Children's Interest in the Comics." *Journal of Experimental Education*, December 1941, and "Reading the Comics—A Comparative Study." *Journal of Experimental Education*, December 1941.

Witty, Paul, Smith, E., and Coomer, A.: "Reading the Comics in Grades VII and VIII." *Journal of Educational Psychology*, March, 1942.

girls in the different grades, although the boys turned to the comics somewhat more frequently than the girls. In this respect, Negro children resemble white pupils closely. Moreover, within the two groups the titles of favorite magazines agreed closely, although the exact positions of titles differed slightly from grade to grade. The twelve favored magazines of the Negro group are presented by rank order for boys and for girls in Table IV.

TABLE II.—MEAN NUMBER OF COMIC MAGAZINES READ

	Mean Number Read	
Grade	Girls	Boys
IV	16.52	18.36
V	16.80	18.33
VI	16.26	22.63

An average of eight magazines were read regularly; four often; and five sometimes by this Negro group, while, on the average, three were read regularly, three often; and six sometimes by the white group. Thus, these Negro children read a considerably larger number of comic magazines than the white pupils. This difference may be attributed to the somewhat more restricted reading opportunities of the Negro pupil; to a more limited number of good, interesting books in the average home and school; and to inadequate funds to purchase many desirable books. In some schools groups of Negro children form clubs in which comic books are exchanged and circulated. In this way comic books and magazines are made available at little or no expense. On the other hand, many Negro children appear to have meagre opportunities to obtain other types of reading matter.*

TABLE III.—MEAN FREQUENCY OF READING COMIC MAGAZINES

Grade	Mean Number Read Regularly	Mean Number Read Often	Mean Number Read Some
IV	9.88	2.73	4.66
V	7.98	4.95	6.45
VI	6.93	4.97	5.05

* The lack of opportunity is revealed in many publications; for example, in the penetrating analysis of the educational status of the Negro presented by Martin D. Jenkins and others entitled *The Black and White of Rejections for Military Service*, published by the American Teachers Association. P.O. Box 71, Montgomery, Alabama, August, 1944.

An analysis was made of the favorite magazine titles arranged according to popularity in grades IV, V, and VI. Noteworthy was the similarity of the favorites in the three grades. This study reveals an inordinate fondness for this type of reading

TABLE IV.—RANKING GIVEN BY GIRLS AND BOYS TO THE TWELVE MOST POPULAR COMIC MAGAZINES

Name of Magazine	Rank	
	Girls	Boys
Batman	1.0	1.0
Superman	2.0	2.0
Jungle	3.0	3.5
Flash	4.0	3.5
Shadow	5.0	5.5
Magic	6.0	10.0
True	7.0	5.5
Detective	8.0	8.5
Famous Funnies	9.0	11.5
Hit	10.0	8.5
Ace	11.0	11.5
War	12.0	7.0

matter—a pastime which attains high rank in the early grades and continues, relatively uninfluenced by factors such as sex or grade, at least throughout the period covered by this investigation.

TABLE V.—MEAN NUMBER OF COMIC STRIPS READ

Grade	Mean Number Read	
	Girls	Boys
IV	21.84	20.36
V	29.51	26.33
VI	22.88	24.63

Table V shows the average number of comic strips read in grades IV, V, and VI. A somewhat larger number of comic strips appears to be read in grade V than in grades IV and VI. Table VI shows that the average number of comic strips read regularly was about fourteen; often, five; and sometimes, six. These averages are strikingly similar to those reported for white

children, namely: thirteen, regularly; four and one-half, often; and six, sometimes. Thus Negro and white children appear to

TABLE VI.—MEAN FREQUENCY OF READING COMIC STRIPS

Grade	Mean Number Read Regularly	Mean Number Read Often	Mean Number Read Some
IV	13.00	2.85	5.06
V	14.24	5.65	5.78
VI	13.5	5.69	6.81

read comic strips with equal frequency; moreover, they prefer similar strips. Table VII shows the ranks given to the twelve most popular comic strips by the boys and by the girls. The similarity in the amount of reading of comic strips by Negro and white pupils merits special consideration. This condition may be attributed to the fact that newspapers are about equally available both to white and Negro children. On the other

TABLE VII.—RANKING GIVEN BY GIRLS AND BOYS TO THE TWELVE COMIC STRIPS GIVEN HIGHEST RANKING BY BOTH SEXES

Name of Strip	Rank Girls	Rank Boys
1) Dick Tracy	1.0	1.0
2) Blondie	2.0	7.0
3) Smilin Jack	3.0	2.0
4) Donald Duck	4.0	9.0
5) Captain and the Kids	5.0	7.0
6) Lone Ranger	6.0	4.0
7) Tarzan	8.5	4.0
8) Superman	8.5	4.0
9) Mickey Mouse	8.5	12.0
10) Flash Gordon	8.5	11.0
11) Terry and the Pirates	11.0	7.0
12) Little Joe	12.0	10.0

hand, the excessive interest of Negro children in the comic magazine is probably brought about by an inadequate provision of books for Negro pupils. This assumption is supported by the observations of Negro teachers who report that their pupils follow balanced reading programs when they are provided with

varied reading materials. More than any other factor, the lack of good reading matter is considered responsible for the Negro pupil's excessive interest in comic magazines.

The extreme popularity of the comics among Negro children suggests an avenue that needs direction. Some constructive efforts have recently concentrated on linking this interest with worth-while educational endeavor. The makers of *My Weekly Reader* have attempted to provide a series of comic strips which can be readily associated with commendable activities in science or the social studies. This venture promises to be beneficial in capitalizing and directing a consuming interest of boys and girls. A still more direct approach has been fostered by the editors of *Parents' Magazine* who began with what appeared to be an improved magazine, *True Comics*. So successful has this venture proved from a financial standpoint that this group has already provided several other comic magazines (e.g., *Calling All Girls*). This approach may improve the situation somewhat, but it will be recognized as quite inadequate. For this problem involves the total pattern of reading of boys and girls. As such, the problem is to be met not merely by exacting conformity, by setting up restrictions and taboos, or by providing improved magazines. In meeting this problem, it is essential that the teacher make a rather complete appraisal of each child's interests and his many-sided nature, since it is only from an examination of the child's total pattern that cues may be obtained for directing him. In some children, an allotment of time to the comics which seems excessive may be viewed otherwise in terms of a well-chosen and judicious balance of worthy interests and pursuits. In other children, a relatively small amount of interest may seem unwarranted in terms of an otherwise impoverished recreational life. Techniques such as the interest-inventory, the anecdotal record, or the child's own diary offer the teacher avenues through which the child's behavior pattern may be studied. From these sources cues will be obtained for directing individuals to better reading patterns.

The larger problem necessitates the provision of good books which are rich in the elements of action, surprise, adventure, and excitement. This point merits special emphasis in the case of the Negro pupil. It is generally conceded that his opportunities in the field of reading are generally inadequate and frequently

deplorable. There are many books for boys and girls which can be used advantageously in this endeavor. Many of these books are reasonable in price, and all of them will be found in well-equipped school or community libraries. These books should be made readily available to all of our children. There is in the child's spontaneous interests a real challenge; the teacher of Negro boys and girls might advantageously follow the lead this interest offers and direct its course in the channel of related worthy reading experiences.

A COMPARATIVE EVALUATION OF TWO NURSERY SCHOOL-PARENT EDUCATION PROGRAMS

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I. INTRODUCTION

In several previous articles,[1,3,4] some aspects of the experimental program known as the Paul Revere Center* have been described. The most recent article,[4] dealing with the effects of a parent education-nursery school program on a group of three-year-olds, suggested the problem the present report attempts to answer, namely: If a five-day week, half-day nursery program affected favorably the participating children, what effect would a two-day week program, conducted by the mothers themselves under the supervision of an experienced counsellor of the Family Department of the Paul Revere Center, have on the development of the children enrolled under the second plan? The question raised is of very practical significance, for by means of the mother-participation plan, one paid staff member could supervise the programs of a greater number of children, thus making available to a greater number of families the services of the preschool department of the Center. Instead of a mere fifteen or twenty children per counsellor, fifty or more children could be assigned to each staff member with perhaps no diminution in the effectiveness of the service rendered each mother and each individual child.

The practical question raised begins to take on some degree of academic significance when recent trends in preschool training are examined. For example, Wolf writes:

"A good nursery school, then, to some degree must always be an extension of the home. Though it offers experiences which the home, by its very nature, cannot offer, it should not break sharply with all that has gone before in the child's experience. There should be a continuous interchange of experience and

* Since 1933, Hiram House, a private social agency, has conducted in collaboration with the Cleveland Board of Education an experimental community program known as the Paul Revere Center. The work, carried on under the direction of Mr. George A. Bellamy, founder and director of Hiram House, is comprised of programs in three public schools: The Paul Revere Elementary School, the Nathan Hale Junior High School, and the John Adams Senior High School.

counsel between parents and teachers. Teachers must recognize the parent-child relationship as the cornerstone on which the child's life is constructed and must understand the part they can play in strengthening it.

"To further these ends, some nursery schools have been organized on a coöperative basis, with parents included as a necessary part of the plan. For example, each mother may pledge, as she enrolls her child, that she will give a specified amount of time each week to the school, acting as assistant to the teachers, assuming certain responsibilities—and, in the process, sharpening her own powers of observation and her skill in management. It would be hard to overestimate the value of learning in this way, through this kind of close association with many children and with teachers whose experience is likely to be wider than the parent's own—though not always as deep. Perhaps not every school can adopt this scheme, for it is not a simple one and requires careful planning as well as expert supervision, but when it has a chance to succeed the educational values are doubled."

The present article, then, should offer some data of general interest in the field of preschool training, and, further, it should offer some objective evaluation of Wolf's[6] statement that the mother-participation plan should, under optimum conditions, double educational values.

II. SUBJECTS

The forty-two children participating in the experiment were divided into three groups, designated here as A, B, and C. All three groups were derived from populations estimated by Green[2] as belonging in the fifth-tenth economic group of Cleveland's population. All, then, belonged to the economic stratum ordinarily designated as lower middleclass.

More specifically, the mid-parent educational levels were 9.6 grades, and the father-occupational level indicated that 30 per cent were of the business and clerical level, while 70 per cent derived from the skilled workman level. All three groups were comprised of a fairly wide range of nationality origins, most of the parents being second-generation Americans.

III. THE PROGRAMS

The general outlines of the program for Group A did not differ materially from those of any creditable half-day nursery school,

sessions being held each regular school day from 9:00 to 11:30 during the period September, 1940, to June, 1941, in a large, well-equipped room in the Paul Revere Elementary School. An adequately equipped playground was available for outdoor play. Circle games, finger painting, music, songs, and stories, comprised part of the usual indoor routine. Trips to places of importance in community life provided for the broadening of the experiential background of the group. This nursery school regime was supplemented by a parent-education program consisting of lectures, conferences, and informal discussion groups on child care and training. In the main, however, the parental education phase of the program was very definitely minimized in importance.

The general program employed for Group B did not differ essentially from that described above except for the fact that the mothers of this second group, after participating in a four-week training period, took turns supervising the semi-weekly nursery groups under the supervision of a member of the Paul Revere staff.

The third group, Group C, was selected as a control for Groups A and B. These children and their mothers received no help other than that accruing from the testing and health services necessary for the compilation of the comparative data obtained on the three groups. As nearly as possible the psychological advice given was reduced to a minimum, unless the situation precluded doing so at the expense of the mother's coöperation. The psychologist did send each mother a brief and relatively noncommittal resumé of the findings of the psychological examination. The physician talked with each mother, making suggestions and answering questions where needed. Strictly speaking, then, Group C was not a true control group. However, in view of the fact that it was the effectiveness of the educational programs *per se* which constituted the real purpose of the experiment, the counsel given Group C did not confuse or obscure the final results.

IV. PROCEDURE

All three groups were given the Revised Stanford-Binet Scale (Form L) in the fall of 1940 by a certified school psychologist. The Walther Behavior Rating Scale[5] was utilized to collect data from the parent upon the child's behavior in the home, and, in

addition, data on twelve questionnaire items, involving emotional adjustment, self-help and parental coöperation, were obtained by interviewing the mother.

A pediatrician then gave each child a thorough physical examination. To the mothers of Groups A and C the physician gave a direct verbal report of the examination, making his suggestions and recommendations directly to them. However, in the case of Group B the mothers were given the recommendations by the counselor, thus permitting the parent only indirect participation in this part of the measurement program.

V. RESULTS

Definitive conclusions cannot be arrived at here, of course, in view of the small number of cases of which each group was comprised. In the fall of 1940 data were obtained on a total of seventy-two cases, twenty-four for each group. However, the irregularity of attendance so characteristic of all winter preschool activities when colds and inclement weather must be taken into consideration reduced the number of cases in Groups A and B to fourteen. To have included the remaining cases would have vitiated the results inasmuch as the percentage of absences were frequently such as to raise the question as to whether or not some of the children could be considered regular members of their groups.

However, some compensation for the small number of cases is to be found in the fact that the participating staff members remained constant for each group and the control cases were also impartially reduced to a comparable number.

In Table I Groups A, B, and C are compared on the basis of the number of physical defects found by the physician in the fall and again in the spring. Although Group A showed only thirteen physical defects in the fall as compared with twenty-one and eighteen for Groups B and C, the spring examination revealed that the physical defects of these latter groups had been reduced by thirty-eight and eleven per cent, respectively, while Group A actually showed an additional defect, increasing the total for this group to fourteen. In Group A, it will be recalled, the mothers had no direct contact with the physicians, so that, although originally this group had the smallest number of physical defects, by spring Groups B and C were more nearly equal to A on the basis of this comparison.

Height and weight differences for Groups A and B indicated an increase of one inch and two pounds during the period, while Group C showed an increase of one inch and one pound for the period.

TABLE I.—COMPARISON OF GROUPS A, B, AND C ON THE BASIS OF THE PHYSICAL IMPROVEMENT SHOWN DURING THE PERIOD SEPTEMBER, 1940, TO JUNE, 1941

Groups Compared	Physical Defects		
	Spring	Fall	Difference
Group A	13	14	1
Group B	21	15	6
Group C	18	16	2

The 'before' and 'after' group averages obtained on the Revised Stanford-Binet Scale (Form L) and on the Walther Behavior Rating Scale are shown in Table II. Group B, the mother-participation group, indicated the greatest increase in IQ for the period, there being ninety-five chances to one hundred that the difference of ten points reported is a true one. The increase of five points reported for Group C falls within the PE range one might expect upon subsequent examination as does the increase of two points reported for Group A. It is interesting to observe that at the conclusion of the period the IQ averages for the three groups are within two points of each other.

The initial IQ ranges for the three groups (A, B, and C) were 95 to 127, 73 to 118, and 83 to 126, respectively, Group B having the lowest initial IQ. This initial IQ of 73 in Group B became 102 on the spring testing, and the concomitant improvement in behavior noted both objectively and subjectively was equally as great.

Seemingly, there existed more room for improvement in Group B. However, still another factor might be suggested to explain the better showing made by Group B as compared with Group A, a factor of some importance in view of the increase of nine points reported for a similar group in a previous paper[4]. The parent education program of Group A (five-day per week, teacher-supervised) was much less intensive in the present

TABLE II.—COMPARISON OF GROUPS A, B, AND C ON THE BASIS OF INTELLIGENCE AND BEHAVIOR RATINGS FOR THE PERIOD SEPTEMBER, 1940, TO JUNE, 1941†

Items Compared	GROUP A			GROUP B			GROUP C		
	Sept.	June	Diff.	Sept.	June	Diff.	Sept.	June	Diff.
MA.....	43+ .82	53+ .79	10+1.15	42+1.9	53+1.7	11+2.55	44+1.15	54+1.25	10+1.70
IQ.....	111+2.07	113+1.64	2+2.64	103+2.71	113+2.5	10+3.68	106+2.33	111+2.18	5+3.43
BMA*.....	43+1.85	57+2.06	14+2.77	41+1.85	66+2.41	25+3.04	46+1.03	52+1.53	6+1.84
BMI**.....	108+4.65	122+4.26	14+6.31	100+4.22	138+6.3	38+7.58	112+2.73	107+2.73	−5+3.86

*Behavior Maturity Age. **Behavior Maturity Index. †"+" in this table should be ±.

experiment than the parent education program for the teacher-supervised nursery group previously reported. Home-visiting as an integral part of the preschool program was almost completely eliminated for Group A; conferences with parents were much less frequent, and the evening 'fathers' night' provided under the original five-day week, teacher-supervised group was dropped completely.

The degree of improvement reported in behavior for the three groups definitely favors Group B, the differences in Behavior Maturity Age and Behavior Maturity Index being statistically significant. While Group A also showed some improvement, the difference in Behavior Maturity Index is not significant, there being ninety-three chances in one hundred that the reported difference of fourteen is a true one. Both A and B, however, were rather definitely superior to Group C on these two comparisons, the final behavior Maturity Rating for the latter group showing a drop of five points, and there being eighty-one chances in one hundred that the obtained minus difference is a true one.

In Table 3 further comparisons of Groups A, B, and C are indicated, these comparative items having been obtained from a questionnaire administered by the interview method. Again, the ratings seem to indicate that both Groups A and B excelled Group C in the final rating, the latter group actually showing no change in three instances and a minus change in three other instances.

When Groups A and B are compared, it will be observed that in five instances the final ratings seem to favor Group B; that in six instances the final ratings seem to favor Group A, and that in one instance no difference or change was recorded. Four of the items favoring Group A show statistically significant differences; two of the items favoring Group B show statistically significant differences; the remaining three items merely approximating statistical significance. It is of particular interest to note that, in the main, Group A excelled in those items involving self-help, i.e., dressing alone, washing self, bathing alone, caring for towel and wash cloth. It would seem, then, that the mother-supervised groups were given less opportunity to help themselves with washing and dressing. However, on those items attempting to measure the extent to which the staff member had been able to obtain parental coöperation in the home, i.e., regular 7:30 bedtime, afternoon naps, the provision of low clothes

TABLE III.—COMPARISON OF GROUPS A, B, AND C ON TWELVE QUESTIONNAIRE ITEMS*

Items Compared	Group A			Group B			Group C		
	September	June	Difference	September	June	Difference	September	June	Difference
No Food Refusals	0 + 1.23	1 + .65	5 + 1.39	6 + 1.23	3 + 1.04	3 + 1.61	3 + 1.04	1 + .65	2 + 1.23
No Fears	12 + 1.15	6 + 1.23	6 + 1.69	9 + 1.21	2 + .88	7 + 1.50	7 + 1.26	13 + .64	6 + 1.41
Staying Happily With Others	12 + 1.15	14 + 2.52	2 + 2.95	11 + 1.01	14 + 2.52	3 + 2.71	9 + 1.21	13 + .64	4 + 1.37
Dressing Alone	0	6 + 1.23	6 + 1.23	4 + 1.14	7 + 1.26	3 + 1.70	2 + .88	3 + 1.04	1 + 1.04
Washing Self	5 + 1.21	10 + 1.16	5 + 1.71	9 + 1.21	11 + 1.01	2 + 1.58	8 + 1.25	6 + 1.23	−2 + 1.76
Bathing Alone	1 + .65	6 + 1.23	5 + 1.39	0	2 + .88	2 + .88	1 + .65	1 + .65	0
Getting Own Wraps	5 + 1.21	8 + 1.25	3 + 1.74	5 + 1.21	10 + 1.16	5 + 1.71	7 + 1.26	7 + 1.26	0
Caring for Towel, Cloth	4 + 1.14	11 + 1.01	7 + 1.52	8 + 1.25	12 + 1.15	4 + 1.70	7 + 1.26	7 + 1.26	0
Regular 7:30 Bedtime	9 + 1.21	11 + 1.01	2 + 1.58	10 + 1.16	11 + 1.01	1 + 1.54	6 + 1.23	4 + 1.14	−2 + 1.68
Afternoon Naps	11 + 1.01	12 + 1.15	1 + 1.53	13 + .64	14 + 2.52	1 + 2.79	10 + 1.16	7 + 1.26	−3 + 1.71
Low Clothes Hangers	6 + 1.23	10 + 1.16	4 + 1.69	3 + 1.04	13 + .64	10 + 1.22	3 + 1.04	10 + 1.16	7 + 1.56
Low Towel Bars	6 + 1.23	10 + 1.16	4 + 1.69	8 + 1.25	14 + 2.52	6 + 2.00	5 + 1.21	9 + 1.21	4 + 1.72

*"+" in this table should be ±.

hangers in the home, and the provision of low towel bars, the difference seems to be somewhat in favor of Group B.

VI. CONCLUSIONS

The findings reviewed seem to suggest that:

1) A two-day per week program conducted by the mothers themselves under the supervision of an experienced staff worker favorably affects the development of the participating children on the items of comparison made here.

2) There seems to be objective evidence in the present study for the soundness of the current trend of mother-participation programs and home-emphasis in modern preschool training plans.

3) The evidence presented here does not bear out the suggestion that the mother-participation plans or programs "double the educational values," but, in view of the fact that the teacher-supervised group attended sessions five days per week as compared with an attendance arrangement of two days per week for the groups supervised by mothers, the results given here certainly suggest that the claim may have some degree of credence.

4) The results obtained on the questionnare items suggest that mother-supervised groups probably need greater emphasis to be placed on self-help, particularly on those habits involving washing and dressing.

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BOOK REVIEW

RALPH LINTON, Editor. *The Science of Man in the World Crisis.* New York: Columbia University Press, 1945, pp. 532.

This is an excellent book. Every psychologist, especially those concerned with the behavior of people in 'natural' rather than 'highly artificial laboratory' situations, should read it. Such psychologists will develop an even greater appreciation for the importance of their discipline, for as one of the authors writes, "We know that the ultimate reality of culture is psychological" (p. 163). At least four of the twenty-two contributors consider themselves psychologists primarily and are so recognized. The majority of the others are constantly and professionally concerned with predicting, controlling and understanding human behavior. They impressed the reviewer as knowing more about psychology than most psychologists know about anthropology.

Unlike many 'edited' symposia, the various contributors to this one seemed to know what one another was up to. The chapters were not integrated quite as well as those in the conventional single author textbook, but there was a surprisingly small amount of overlap and, with the exception of the word 'culture,' which was used in several senses, there were few terminological contradictions. The integrating concept that tied the chapters together was the idea of culture,—'officially' defined as "a historically derived system of explicit and implicit design for living which tends to be shared by all or specially designated members of a group" (p. 98). The dominating and pervasive implication of all of the separate chapters is that the socially significant differences among men and races are cultural or learned differences rather than those that are fixed in the germ plasma.

Educational psychologists will be especially interested in a number of chapters. Kardiner's description of the basic personality structure is excellent. For at least a generation students of child development and educational psychology have recognized the importance for personality genesis of environmental influences during the first two years of life. Discussions of this fact, however, usually stress the significance of early training without inquiring very deeply into 'why' babies were attended to

in such and such a fashion. Consequently, students (including Freud) who were immersed in Western culture often developed erroneous ideas of the inevitability of certain basic and early established personality traits. Kardiner, by reference to studies of groups with radically different traditions and 'subsistence techniques' stresses the relativity of all of our cultural practices.

Murdock's essay, "Common Denominators of Culture," is primarily an analysis of the importance of learning in acculturation. His description of learning, which is repeated in part in Dollard's later essay, will interest psychologists in spite of several careless statements such as: "Habits are maintained only so long as they bring reward . . . " (p. 137). This is obviously not true, and is later on contradicted by Murdock himself and by several other authors who write about the persistence of ineffectual cultural habits or even those that are destructive of a culture.

The reviewer wished that Murdock had not gotten so quickly to a discussion of learning and had spent more time in elaboration of 'common denominators of culture.' In a sense it is easy to exaggerate the differences among men because it is these different practices and habits that cause friction. Similarities in purpose or function of behavior are less influential than might be supposed because our relationships to one another are largely in terms of specific behaviors. We do not rationalize what we do very frequently, (p. 163). The fact that one group allows its dead to be eaten by vultures and another group puts its dead in the ground to rot is more apt to be cause for friction than the equally obvious fact that both groups are disposing of their dead.

The implication of the many arguments developed in this volume for aspirations for human improvement is readily admitted, easily recognized, but difficult to implement. As Kardiner writes, "Any plan for social action based on these principles must . . . compete with powerful forces lined up on the side of simpler principles, such as race theories of superiority, of eugenic selection of elites, of the 'rights' of certain classes, . . . " (p. 122). That the authors themselves were interested in practical applications is borne out by the fact that at least one half of the essays attempted to bring modern knowledge about anthropology to bear upon modern problems.

The Science of Man in the World Crisis includes very little raw data and almost none of a statistical variety. With the exception

of Krogman's chapter and one by Meyerhoff none of the others contains more than a single statistical table. The most significant inferences the anthropologians have made seem to be for the most part shrewd deductions from one or two or maybe several observations of cultures, their genesis and consequences. As a result the generalizations seem greatly influenced by a frame of reference. Specific citations tended to be in the form of illustrations rather than evidence. The concept of reliability, of repeated and checked observations, was rarely attended to. Probably this is because anthropology, as elaborated by these authors, is new and dynamic and synthetic, in the sense that its basic raw data in lowest common denominator terms are often derived from more circumscribed and tightly logical parent subjects.'

The influence of a 'frame of reference' or 'point of view' is illustrated in the tendency to interpret important negative findings as an absence of knowledge (p. 77). There are, for example, these four possible conclusions from the many comparative studies of Negro-white intelligence: (1) Negroes are more intelligent; (2) Whites are more intelligent; (3) The two races are of equal or comparable intelligence; (4) The studies are inconclusive. In the reviewer's judgment the valid conclusion is No. 4 for the simple reason that culture-free intelligence tests are not available and it is likely that they never will be. Most 'liberal' anthropologists (e.g. Klineberg), however, imply conclusion No. 3. This seems to be a wishful conclusion. In the initial chapter Linton manifests somewhat the same tendency toward optimism when he interprets as 'a modern tendency' a number of trends that it is clear he would like to see accelerated.

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